



Swamp chestnut oak acorns from bottomland hardwood site.

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Each year during the spring months, there is harried activity as various organisms - the plants and animals - get about their work. Adequate conditions for growth (temperature, moisture, light, etc.) that have been scarce over the winter months, suddenly become available, and are a smorgasbord for the taking. Each species tries to position itself to benefit from the resources, in order to better perpetuate its kind. Oak trees are no exception, so shortly after the buds begin flushing, energy is directed into

flower production in the hopes that a cache of acorns will be available by fall.

Like many trees, the oaks are said to be monoecious. This means that both the male (staminate) and female (pistillate) flowers are on the same tree, and that potentially every tree is capable of producing acorns. In contrast, other trees, such as persimmon and white ash, are dioecious, whereby the male and female flowers are produced on separate plants. Only those trees with female flowers produce seed.

The male flowers of oak trees are quite noticeable. Normally by late

March, oaks have produced long, worm-like looking structures that droop downward off of the base of newly forming branches. These structures, called catkins, will have a number of small flowers, resembling bumps, persisting along the stem. From these flowers comes the pollen that by mid-April affects so many allergy sufferers.

The female flowers are much more discrete, requiring a hand lens for identification. They are also located on newly forming twigs, specifically at the base of emerging leaves, and are easily overlooked because they closely resemble

buds. Unlike buds, however, the female flowers will have very small, reddish stigma (which are like small pedestals) that rise up from the ovaries to receive the pollen. There may be five or six ovaries at the base of each female flower, of which rarely will more than two become fertilized.

Year-to-year acorn production is very unpredictable due mainly to external factors. For instance, acorn production can be restricted by: late freezes (damaging the flowers), high wind (affecting pollen distribution and damaging male flowers), insects (such as weevils feasting on the seeds), nutrition, humidity, and soil moisture. Oak trees often abort acorns during periods of stress. Inherently, in an attempt to conserve resources such as water or nutrients, trees will abort seeds, then redirect resources away from seeds and into more critical life-sustaining processes.

It is also known that genetics play a role in acorn production. Certain trees typically produce more acorns than others – a phenomenon that deer hunters keenly observe. Trees appear to begin producing acorns at about 20 years old, with peak production from about 50 to 80 years, then tapering off. Healthy trees



Photo by Dr. Jennifer Franklin

The male flower of an oak tree.

Below: Red oak acorns germinate in the spring, whereas white oak acorns germinate in the fall.



Photo by Dr. Jennifer Franklin

with dominant crowns (crowns decidedly higher and larger than those of surrounding trees) will produce more acorns than unhealthy, suppressed trees.

Oak trees are essential to Alabama for wildlife, aesthetics, and lumber production. It is important to keep oak trees and forests healthy in order to perpetuate this species for future beneficiaries. 🌳



Need help with your forest?

The Alabama Forestry Commission provides a variety of forest management assistance. Services include written stand and forest management plans, insect and disease identification and recommendations, prescribed burning, as well as construction of permanent fire breaks and fire lanes. If you need assistance, contact your local Alabama Forestry Commission office or visit our web page at **www.forestry.state.al.us**.

Cullman County landowner Nate Henderson (left) gets assistance from Cullman County Manager Michael Jones regarding forest management on his property in Colony.